

Application No. 10/799,090
Amendment dated December 5, 2005
Reply to Office Action dated June 3, 2005

REMARKS

Reconsideration and allowance of the above-identified application are respectfully requested. Upon entry of this Amendment, claims 1-24 will be pending.

Applicant appreciates the Examiner's indication that dependent claims 4, 11 and 18 include allowable subject matter. However, claims 1-3, 5-10, 12-17 and 19-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over published U.S. Patent Application No. 2004/0203905 to Cuffaro in view of U.S. Patent No. 6,594,238 to Wallentin and published U.S. Patent Application No. 2002/00176173 to Hunzinger. This rejection is respectfully traversed.

Specifically, as discussed in more detail below, Applicant respectfully submits that the as admitted by the Examiner, the Cuffaro patent application fails to teach or suggest the features pertaining to the "predictive filter" as recited in independent claims 1, 8 and 15, and that the Wallentin and Hunzinger references fail to make up for the deficiencies in the teachings of the Cuffaro patent application. In particular, Applicant respectfully submits that the Wallentin patent merely teaches the use of a "standard recursive prediction error algorithm (RPEM) with a forgetting factor" for determining the error in packet arrival time. Furthermore, although the Hunzinger patent application generally teaches monitoring the location of a mobile station, this reference also fails to teach or suggest the features relating to the "predictive filter" as recited in independent claims 1, 8 and 15 of the present invention.

Further details of the present invention, and the teachings of the cited art, will now be discussed.

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As described throughout the present application, an embodiment of the present invention provides a system and method for determining the location of a mobile communication device in a communication network. The system and method perform the operations of estimating the location of the mobile communication device based on measured data, and then modifying the estimated location using a predictive filter including a forget factor. The forget factor treats older data less significantly than newer data in estimating the location. Hence, the modifying step generates a modified estimated location. These features of the present invention are set forth in independent claims 1, 8 and 15. In addition, new dependent claims 22-24 are being added to elaborate on a manner in which the forget factor is determined in accordance with an embodiment of the present invention.

The Cuffaro patent application relates to a system and method for determining speed and distance of a mobile unit. The Examiner cites paragraph 0006, 0012 and 0016-0020 of the Cuffaro patent application as allegedly teaching the process of estimating a location of the mobile communication device based on measured data representing respective distances between the mobile communication device *and a plurality of reference points* as recited in independent claims 1, 8 and 15. However, Applicant respectfully submits that these sections of the Cuffaro patent application describe a technique in which a beacon is used to determine the relative location of a wireless transmit receive unit (WRTU) 16 with respect to a primary station 14, and then the polar coordinates of the WRTU 16 are converted into Cartesian coordinates in order to determine an absolute location of the WRTU 16. Applicant respectfully submits that this method

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is unlike the present claimed invention in which the location is estimated based on respective distances between the mobile communication device and a plurality of reference points.

Furthermore, as admitted by the Examiner, the Cuffaro patent application fails to teach or suggest the use of a predictive filter. Nevertheless, for this feature, the Examiner relies on the teachings of the Wallentin patent, and contends that one skilled in the art would have found it obvious to employ the techniques taught by the Wallentin patent into the Cuffaro system and method to achieve the claimed invention. Applicant respectfully disagrees.

The Wallentin patent teaches a method and apparatus for dynamically adapting a connection state in a mobile communication system. The Examiner contends that column 9, line 66 through column 10, line 3 and column 10, lines 27-34 of the Wallentin patent teach the use of a forgetting factor. As mentioned above, Applicant respectfully submits that the forgetting factor described in the Wallentin patent is used for estimating the packet arrival time. The forgetting factor has no relationship to estimating the location of the devices. Granted, the Wallentin patent generally mentions that the mobile station's location can be monitored. However, the Wallentin patent fails to teach or suggest specifics for monitoring the mobile station's location which include the use of a forgetting factor to improve the estimated location of the mobile station.

Concerning the Hunzinger patent application, Applicant submits that this reference teach a system and method for communicating location information in a wireless cellular telephone system. Applicant respectfully submits that although paragraph 0011 of the reference generally discusses tracking and estimating the position of a mobile station, nowhere does the Hunzinger

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patent application teach or suggest the use of a predictive filter and forget factor as recited in the independent claims.

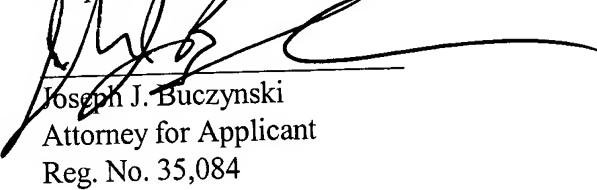
For all these reasons, Applicant respectfully submits that one skilled in the art would not have found it obvious or possible to modify the system and method taught by the Cuffaro patent application in accordance with the teachings of the Wallentin and Hunzinger references to achieve the present invention even as recited in independent claims 1, 8 and 15. Accordingly, all claims should be allowable.

Concerning the dependent claims, Applicant respectfully submits that the cited references fail to teach or suggest the use of a predictive filter to adjust the predicted movement that is predicted on three axes as recited in dependent claims 2, 9 and 17, as well as the equations as modified by the predictive filter as recited in dependent claims 3, 10 and 17. Applicant further respectfully submits that the cited references fail to teach or suggest the use of the location determining techniques in a multihopping network as recited in claims 5, 12 and 19. Also, Applicant submits that the cited references fail to teach or suggest a mobile unit as recited in dependent claims 6, 13 and 20 that performs the operations as recited in the independent claims. In addition, concerning dependent claims 7, 14 and 21, Applicant respectfully submits that the values “0” and “1” taught by the Wallentin patent relate to the state of the neuron as being fully active or completely inactive. The values “0” and “1” in the Wallentin patent have no relation to the values of the forget factor as recited in dependent claims 7, 14 and 21 of the present application.

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For all these reasons, Applicant respectfully submits that all claims should be allowable, and notice to this effect is respectfully requested. The Examiner is invited to contact the undersigned with any questions at the number indicated below.

Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that this AMENDMENT (along with any documents referred to as being attached or enclosed) is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service on the date indicated below, Express Mail mailing Number EV067079308US and addressed to: Mail Stop Amendments, Commissioner for Patents, P.O Box 1450, Alexandria, VA 22313-1450.

Date: December 5, 2005

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